

# Online Appendices for "Feeling Comfortable with a Mortgage: The Impact of Framing, Financial Literacy and Advice"

February, 2023

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## Online Appendix A Survey Instrument

This appendix provides screenshots of the online survey put into field in October 2020 through the third-party commercial survey panel provider, Pureprofile. Pureprofile sent invitations to potentially suitable panel members by email. On clicking a link, participants were invited to join the survey. The panel provider filled pre-set gender and age group quotas that matched Australian population characteristics.<sup>21</sup> To ensure that we were collecting data from people who were genuinely interested in home loans, we chose participants from among Australian adults, aged between 25 years and 64 years (inclusive) and who earned over \$52,000 per year. We also screened out otherwise eligible participants who, at the time of the survey, had never taken a mortgage and did not plan to take a mortgage in the future. Pureprofile compensated participants who completed the survey for their time (approximately \$4). The majority of participants completed the survey in under 15 minutes, and the entire data collection process took around two weeks.

Due to the nature of this survey you will be asked personal information such as your income and your housing situation. Your answers to these questions are confidential and cannot be used to identify you personally. They will only be used to compare different types of people, such as younger and older people, males and females, high and low-income people, etc.

Please note that you may terminate participation in the survey at any time. However, only completed surveys will be given full compensation for participation.

Your involvement in this study is detailed in the [Participation Information Statement](#) (a new tab will open).

**Will you participate in this survey?**

- Yes
- No

Thank you for your interest in this survey.


The survey will take about 20 to 30 minutes to complete.

Take as much time as you need to answer the questions. Most questions only require you to tick a box. A few questions ask you to type in a response. All your answers to the questions are strictly anonymous. Please do not use a calculator while answering the survey or browse the internet for answers. No one will contact you after the survey, and no sales solicitations is involved. Your answers will be used for research purposes only.

**Are you?**


- Male
- Female
- Prefer not to say

**To which age group do you belong?**

Please select your answer 

**Which of the following categories best describes your weekly (annual) gross household income (before tax)?**

Household income is the TOTAL income earned by you and your spouse or partner (if you have one).

Please select your answer 

**What is the postcode where you live?**

Please type the four-digit postcode number in the box below.

**When did you last apply for a mortgage?**

- In the past year
- In the past 2-10 years
- Over ten years ago
- I have never taken a mortgage

**Approximately how much did you borrow when you last applied for a mortgage?**

**Approximately how much do you owe on that mortgage now?**

**When did you last apply for a mortgage?**

- In the past year
- In the past 2-10 years
- Over ten years ago
- I have never taken a mortgage

**Do you intend to apply for a mortgage?**

- In the next year
- In the next ten years
- Ten years or more from now
- I don't ever intend to take a mortgage

**Approximately how much do you think you would borrow when you next apply for a mortgage?**

**i** Next, we will ask you questions about mortgages (home loans), mortgage providers and financial products. The purpose of these questions is to help us learn more about your understanding and use of financial products.

**[HIDDEN] TREATMENT ALLOCATION**

- Treatment 1
- Treatment 2

**[HIDDEN] TREATMENT 1 CONDITION ORDER**

- Condition 1 (Debt) > Condition 2 (Repayment)
- Condition 2 (Repayment) > Condition 1 (Debt)

**[HIDDEN] RANDOM DEBT VALUE SELECTION**

- \$365,000
- \$664,000
- \$1,211,000
- \$2,206,000

**[HIDDEN] CORRESPONDING REPAYMENT VALUE**

- \$1,700
- \$3,100
- \$5,700
- \$10,350

Suppose

- you are buying a new house and taking out a new **residential mortgage**;
- this is the only residential mortgage you have;
- the loan must be fully repaid after 25 years;
- a 20% deposit has already been paid.

We will show you a monthly debt repayment for this mortgage. Please indicate how comfortable you would be with the given monthly mortgage debt repayment. Please remember there are no right or wrong answers; these questions are only about your mortgage preferences.

Suppose your monthly mortgage repayment is **\$5,700** and you do not have to repay any more beyond this amount. Please rate how **comfortable or uncomfortable** you would be with a total new monthly mortgage repayment of **\$5,700**.

Very uncomfortable	Uncomfortable	Slightly uncomfortable	Neither comfortable nor uncomfortable	Slightly comfortable	Comfortable	Very comfortable
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Suppose

- you are buying a new house and taking out a new **residential mortgage**;
- this is the only residential mortgage you have;
- the loan must be fully repaid after 25 years;
- a 20% deposit has already been paid.

We will show you a total debt amount for this mortgage. Please indicate how comfortable you would be with the given total mortgage debt amount. Please remember there are no right or wrong answers; these questions are only about your mortgage preferences.

Suppose your total debt is **\$1,211,000** and you do not have to borrow any more beyond this amount. Please rate how **comfortable or uncomfortable** you would be with a total new mortgage debt of **\$1,211,000**.


Very uncomfortable	Uncomfortable	Slightly uncomfortable	Neither comfortable not uncomfortable	Slightly comfortable	Comfortable	Very comfortable
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**Which of the following best describes your dwelling?**

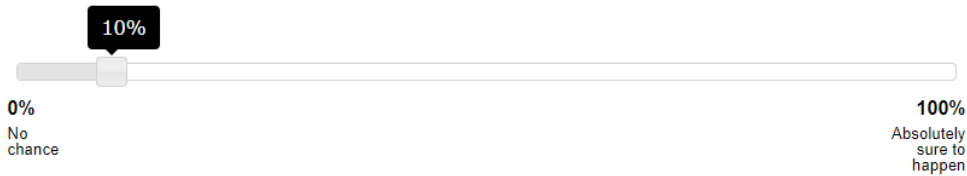
- Free standing house
- Semi-detached, row or terrace house, townhouse, etc.
- Flat, unit or apartment
- Other dwelling (e.g. Caravan, cabin, houseboat, or improvised home)

**Is your dwelling...?**

- Owned outright
- Owned with a mortgage
- Being purchased under rent/buy scheme
- Being rented
- Being occupied rent free
- Being occupied under a life tenure scheme
- Other

 The next set of questions ask you what you think home prices are likely to be in the future.

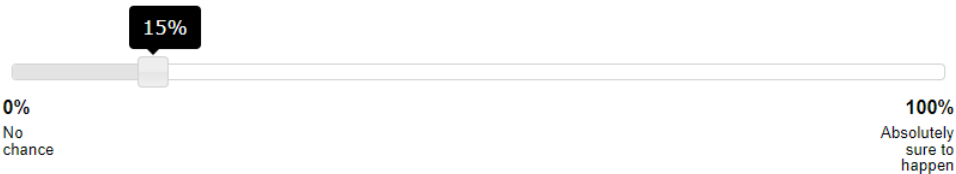
On a scale from 0 percent to 100 percent where 0 means that you think there is no chance and 100 means that you think the event is absolutely sure to happen, **what do you think are the chances that by this time next year your home will be worth more than it is today?**



**Check the following box to confirm your answer:**

- I think there is a 10% chance that by **this time next year** my home will be worth more than today.

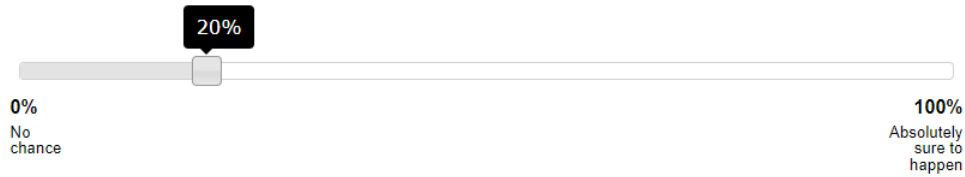
**What are the chances that over the next 5 years your home will be worth more than it is today?**



**Check the following box to confirm your answer:**

- I think there is a 15% chance that **over the next 5 years** my home will be worth more than today.

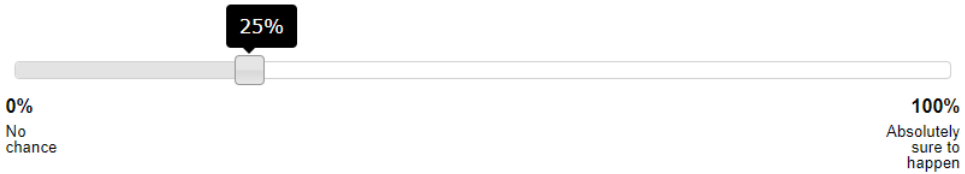
What are the chances that 5 years from now the value of your home will have gone up by more than 10 percent?



Check the following box to confirm your answer:

I think there is a 20% chance that 5 years from now the value of my home will have gone up by more than 10 percent.

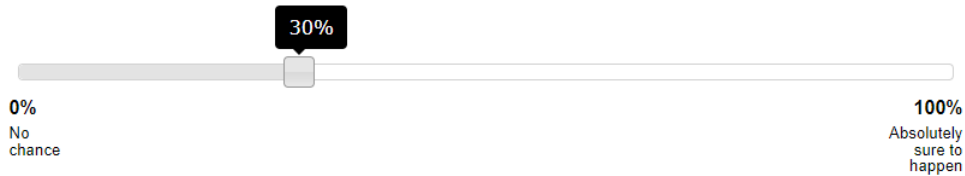
What are the chances that 5 years from now the value of your home will have gone up by more than 20 percent?



Check the following box to confirm your answer:

I think there is a 25% chance that 5 years from now the value of my home will have gone up by more than 20 percent.

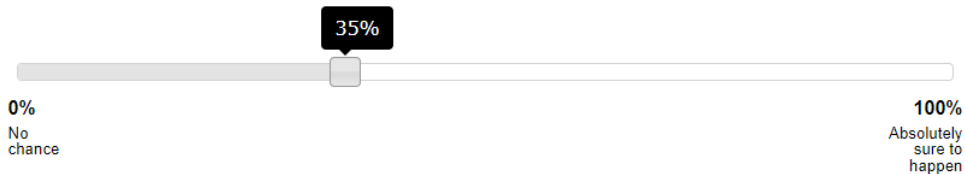
What are the chances that 5 years from now the value of your home will have gone down by more than 10 percent?



Check the following box to confirm your answer:

I think there is a 30% chance that 5 years from now the value of my home will have gone down by more than 10 percent.

What are the chances that 5 years from now the value of your home will have gone down by more than 20 percent?

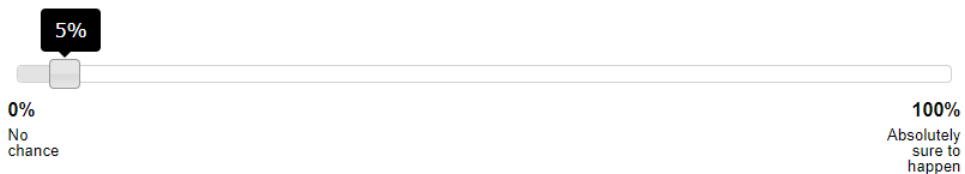


Check the following box to confirm your answer:

I think there is a 35% chance that 5 years from now the value of my home will have gone down by more than 20 percent.

**i** The next set of questions ask you what you think home loan interest rates are likely to be in the future. Some of these questions use the term "percentage point", meaning that if interest rates were now 2% and they were to go up by "1 percentage point" they would change from 2% to 3%.

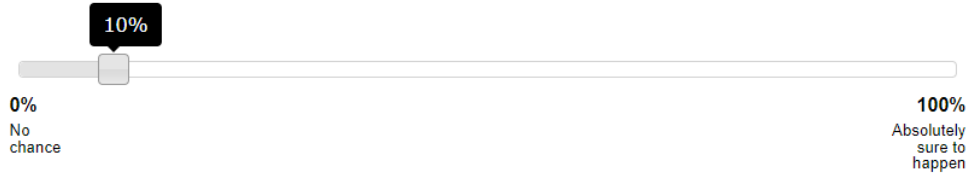
On a scale from 0 percent to 100 percent where 0 means that you think there is no chance and 100 means that you think the event is absolutely sure to happen, **what do you think are the chances that by this time next year home loan interest rates will be higher than they are today?**



Check the following box to confirm your answer:

I think there is a 5% chance that by this time next year home loan interest rates will be higher than they are today.

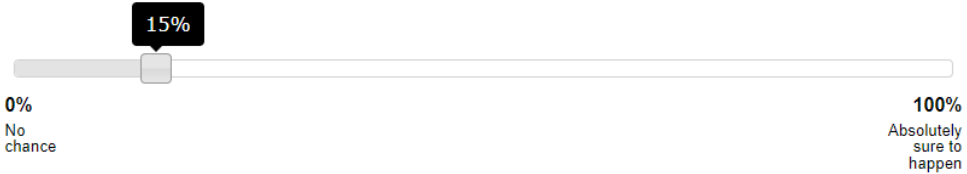
What are the chances that in 5 years from now home loan interest rates will be higher than they are today?



Check the following box to confirm your answer:

I think there is a 10% chance that in 5 years from now home loan interest rates will be higher than they are today.

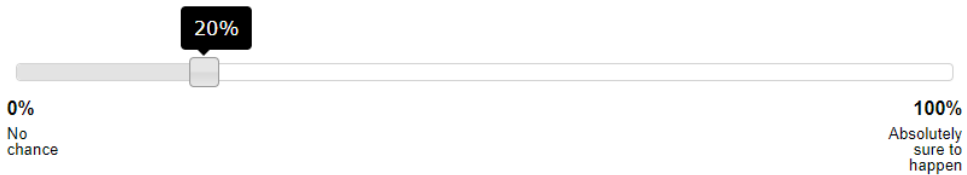
What are the chances that in 5 years from now home loan interest rates will have gone up by more than 1 percentage point?



Check the following box to confirm your answer:

I think there is a 15% chance that in 5 years from now home loan interest rates will have gone up by more than 1 percentage point.

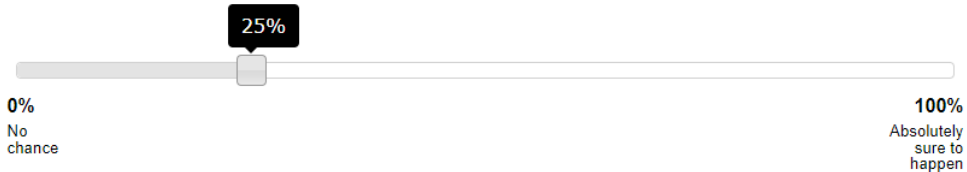
What are the chances that in 5 years from now home loan interest rates will have gone up by more than 2 percentage points?



Check the following box to confirm your answer:

I think there is a 20% chance that in 5 years from now home loan interest rates will have gone up by more than 2 percentage points.

What are the chances that 5 years from now home loan interest rates will have gone down by more than 1 percentage point?



Check the following box to confirm your answer:

I think there is a 25% chance that in 5 years from now home loan interest rates will have gone down by more than 1 percentage point.

What are the chances that 5 years from now home loan interest rates will have gone down by more than 2 percentage points?



Check the following box to confirm your answer:

I think there is a 30% chance that in 5 years from now home loan interest rates will have gone down by more than 2 percentage points.

**Have you ever consulted a mortgage broker?**

- Yes
- No

**Will you consult a broker when you take out your next mortgage?**

- Yes
- No
- Do not know

**Before you applied for a mortgage, did you take steps to save for a deposit faster?**

Select all that apply.

- Prepared a budget
- Saved into a high-interest saving account
- Used an automatic saving system such as a direct transfer from your pay
- Invested in shares, managed funds or other higher-earning securities
- Other (Please specify)
- I did not take any special steps

**Before you applied for a mortgage, where did you look for information about mortgages?**

Select all that apply.

- Lender websites/brochures
- Comparison sites
- MoneySmart, CHOICE or other consumer advice services
- Lending Officer
- Mortgage broker
- Financial Planner, Accountant, or other financial professional
- Friends and family
- Other calculators
- Other (Please specify)
- I did not look for information

**Have you ever made purchases using any of the following?**

Select all that apply.

- Credit card/store card
- Personal loan (for other than housing) from bank or major lender
- Housing loan (residential or investment mortgage)
- Vehicle (car, caravan) loan/leasing arrangement
- Short-term personal loan (such as Nimble, MoneyMe; Wallet Wizard etc.)
- Buy now; Pay later services (such as AfterPay; zipMoney)
- Online lending platform (such as SocietyOne)
- None of the above

**Do you currently have outstanding debts in any of these categories?**

Select all that apply.

- Credit card/store card
- Buy now; Pay later services (such as AfterPay; zipMoney)
- None of the above



**Have you ever been overdue or made a late loan repayment on a loan in any of these categories?**


Select all that apply.

- Credit card/store card
- Buy now; Pay later services (such as AfterPay; zipMoney)
- None of the above

**Have you ever had an application for a loan rejected in any of these categories?**

Select all that apply.

- Credit card/store card
- Personal loan (for other than housing) from bank or major lender
- Housing loan (residential or investment mortgage)
- Vehicle (car, caravan) loan/leasing arrangement
- Short-term personal loan (such as Nimble, MoneyMe; Wallet Wizard etc.)
- Buy now; Pay later services (such as AfterPay; zipMoney)
- Online lending platform (such as SocietyOne)
- None of the above

 The questions in this section are similar to those in the ABS Census of Population and Housing. We ask them so that we can compare the answers of different types of. Your answers to all questions in this survey are confidential and no one associated with the project can identify you personally.

**What is your marital status?**

- Never married and not living in a long term (de facto) relationship
- Widowed
- Divorced
- Separated but not divorced
- Married
- Living in a long term relationship (de facto)

**Who is most responsible for the major financial decisions in your household?**

- You
- Someone else
- You and someone else are equally responsible

**How many people in your household do you fully or partially support financially?**

- 1 (yourself only)
- 2
- 3
- 4 or more

**What is the highest level of school you have completed?**

- Year 12 or equivalent
- Year 11 or equivalent
- Year 10 or equivalent
- Year 9 or equivalent
- Year 8 or equivalent
- Year 7 or equivalent
- Year 6 or below
- Did not go to school

**What is the highest post school qualification you have?**

- PhD
- Master Degree or equivalent
- Graduate Diploma or Graduate Certificate from university or equivalent
- Bachelor Degree
- Advanced Diploma or Diploma from university/TAFE or equivalent
- Certificate or equivalent from TAFE or equivalent
- None of the above

**Generally speaking, which political party do you align more closely with?**

- Liberal Party
- Labor Party
- The Nationals
- The Greens
- One Nation
- Other (Please specify)
- I don't feel aligned to any political party

**How strongly do you support this party?**

- Not very strong
- Fairly strong
- Very strong

**In politics, people sometimes refer to the 'left' and the 'right'. Where would you place yourself on a scale from 0 to 10, where 0 means the left and 10 means the right?**

Left											Right
0	1	2	3	4	5	6	7	8	9	10	

**Which of the following best describes your current work status?**

- Employed full time
- Employed part time
- Unemployed
- Not in the labour force - Stay-at-home parent of caregiver
- Not in the labour force - Full-time student
- Not in the labour force - Retired
- Not in the labour force - Other

**Thinking about the past year, how does your income compare to your expenses?**

- My income was far less than my expenses
- My income was slightly less than my expenses
- My income and expenses were equal
- My income was slightly greater than my expenses
- My income was far greater than my expenses

**i** This section asks questions about financial risk attitudes and some COVID-19 risk attitudes.

**How do you see yourself: Are you generally a person who is fully prepared to take risks in financial matters or do you try to avoid taking risks?**

Please select a box on the scale, where the value 0 means: 'Unwilling to take risks in financial matters' and the value 10 means: 'Fully prepared to take risks in financial matters'.

Unwilling to take risks in financial matters						Fully prepared to take risk in financial matters				
0	1	2	3	4	5	6	7	8	9	10

**Are you generally an impatient person, or someone who always shows great patience?**

Please select one box on the scale where 0 means 'very impatient' and 10 means 'very patient'.

Very impatient						Very patient				
0	1	2	3	4	5	6	7	8	9	10

**Please indicate whether you agree or disagree with the following statements:**

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
I cannot be trusted with money	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do not consider how my behaviour affects other people	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to spend my money wisely	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When faced with a physically demanding chore I always tried to put off doing it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I would have a hard time sticking with a special, healthy diet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have always felt like my hard work would pay off in the end	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I cannot motivate myself to accomplish long-term goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have always tried to eat healthy because it pays off in the long run	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to consider how my actions will affect other people in the long-term	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have given up physical pleasure or comfort to reach my goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**How effective do you believe masks are in slowing the transmission of Covid-19?**

They are effective						They are not effective
1	2	3	4	5	6	7

**During the pandemic, how often do you wear a mask in public when you are not required to wear one?**

Never						All the time
1	2	3	4	5	6	7

I am always required to wear a mask in public

**During the pandemic, how often do you wear a mask in public when you are required to wear one?**

Never						All the time
1	2	3	4	5	6	7

I have not been required to wear one

**Do you consider you or your immediate family members to be at a higher risk for serious complications from Covid-19 than other people?**

- Yes
- No

**i** This section includes questions to measure your general financial and numeracy skills. Please answer the questions without using a calculator.

On a scale of 1 to 7, where 1 means 'very low' and 7 means 'very high', how would you assess your understanding of finance?

Very low							Very high
1	2	3	4	5	6	7	

Suppose you had \$100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?

- More than \$102
- Exactly \$102
- Less than \$102
- Do not know

Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?

- More than today
- Exactly the same
- Less than today
- Do not know

Please evaluate whether this statement is true or false.

*'Buying shares in a single company usually provides a safer return than buying units in a managed share fund'.*

- True
- False
- Do not know

Imagine that we rolled a fair, six-sided die 1,000 times. Out of 1,000 rolls, how many times do you think the die would come up even?

Please enter a number between 0 to 1000 in the box.

times

In a lottery, the chance of winning a \$500 prize is 1%. What is your best guess of how many people would win the prize if 1,000 people each buy a single ticket in the lottery?

Please enter a number between 0 to 1000 in the box.

people

In a raffle, the chance of winning a car is 1 in 1,000. What per cent of tickets in the raffle win a car?

%

Before you submit the survey, if you have any opinions regarding this survey, please type in the box below. This will help us to improve our future surveys.

This concludes the survey. Thank you very much for your valuable time and feedback.

## Online Appendix B First Stage Results of the IV-GMM Estimation

In the following we report the results from the first stage regression of the GMM models reported in Table 5 and Table 7, respectively. We employed two instruments that are correlated with broker use but unlikely to be related to comfort with mortgages or absolute deviation between comfort-equivalent debt or repayments after conditioning on the other explanatory variables. These instruments are the number of financial advisers in the postcode of the participant, as registered by the regulator, ASIC. We reason that (pre-determined) ease of access to local advisers and advice firms that typically offer mortgage brokerage services is likely to be positively related to broker use, but independent of the errors in the comfort equation. We also compute an instrument from a separate survey on mortgage choice that collected responses from a new, different sample of 1,601 past, current or future Australian mortgage borrowers in April 2021 (see Online Appendix D for more details). This instrument is the number of broker users, from the separate data collection, who reside in the same postcode as the participants we study here. We reason that the number of broker users in the postcode of a participant is likely to be positively related to the participant's broker use but independent of their conditional comfort level with mortgage debt.

Table B.1 reports the logit results of the first stage regressions for participants in task 1 and 2, respectively. The dependent variable in both logit models is whether the respondent used a mortgage broker in the past. We find that both instruments are highly predictive ( $p < .01$ ) of broker usage. While a higher financial adviser count in the postcode is associated with a higher likelihood of having used a broker, the number of other mortgage broker users has - in contrast to our expectations - a negative association with participants reporting that they have used a mortgage broker. The results in table B.1 further show that across both treatments being older and being partnered is associated with a higher likelihood of having used a mortgage broker, risk aversion however with a lower likelihood of having used a mortgage broker. Naturally, participants with mortgage experience are also more likely to have used a mortgage broker in both tasks, yet we do not find any other common pattern in the two logit models.

Table B.1: First Stage Regressions for Task 1 and Task 2

Dependent Variable: Used Mortgage Broker (de-meaned)	(1)	(2)
	Task 1	Task 2
Mortgage Broker User Count	-0.007*** (0.002)	-0.009*** (0.002)
Financial Adviser Count	0.000*** (0.000)	0.0003*** (0.0001)
Log(size) (de-meaned)	0.000 (0.005)	0.000 (0.188)
Log(size) <sup>2</sup> (de-meaned)		0.000 (0.007)
Increasing debt condition (de-meaned)	-0.022* (0.009)	0.029** (0.009)
Lump sum (de-meaned)	-0.000 (0.009)	0.0001 (0.009)
Monotonic Responses (de-meaned)	-0.0263* (0.012)	(0.008) (0.012)
Mortgage Experience (de-meaned)	0.482*** (0.015)	0.346*** (0.013)
Financial literacy (de-meaned)	0.0683*** (0.010)	0.002 (0.011)

*Continued*

Table B.1 – *Continued*

Dependent Variable: Used Mortgage Broker (de-meaned)	(1)	(2)
Numeracy (de-meaned)	0.0214*	0.019
	(0.011)	(0.011)
Female	-0.0390***	0.011
	(0.010)	(0.011)
Age (25-29 excluded)		
30-34	-0.000	0.114***
	(0.018)	(0.016)
35-39	0.022	0.178***
	(0.019)	(0.018)
40-44	0.035	0.125***
	(0.019)	(0.020)
45-49	-0.0919***	0.143***
	(0.020)	(0.019)
50-54	-0.215***	-0.0491*
	(0.021)	(0.023)
55-59	-0.271***	-0.0925***
	(0.021)	(0.021)
60-64	-0.360***	-0.124***
	(0.023)	(0.022)
Household weekly income (\$1,000-\$1,249 excluded)		
\$1,250-\$1,499	-0.125***	0.036
	(0.018)	(0.018)
\$1,500-\$1,999	-0.0519**	-0.0457**
	(0.016)	(0.017)
\$2,000-\$2,499		(0.015)
	(0.018)	(0.017)
\$2,500-\$2,999	-0.0977***	0.028
	(0.019)	(0.020)
\$3,000-\$3,499		-0.0480*
	(0.013)	(0.021)
\$3,500-\$3,999	0.0699**	0.019
	(0.022)	(0.024)
\$4,000-\$4,999	0.114***	0.281***
	(0.025)	(0.020)
\$5,000+	-0.162***	(0.022)
	(0.026)	(0.032)
Partnered	0.0559***	0.100***
	(0.011)	(0.011)
Bachelor degree or higher	0.0330**	0.002
	(0.011)	(0.011)
Risk aversion above average	-0.0454***	-0.0448***
	(0.010)	(0.011)
Patience above average	0.0295**	0.011
	(0.010)	(0.010)
Employed	-0.0393*	0.140***
	(0.015)	(0.015)
Constant	0.139***	-0.226***
	(0.026)	(0.028)
Observations	10,000	9,980

This table reports the first stage regressions in our IV estimation. The dependent variable is the indicator of having used mortgage brokers in the sample with Task 1 (n=500) and with Task 2 (n=499). Since each participant gave a rating for one of ten lump sum debt or monthly repayment levels in a series of 20 questions, the total number of observations is 20\*500=10,000 and 20\*499=9,980, respectively. Explanatory variables are experiment indicators and participant characteristics. Variable definitions are shown in Table 3 in the main text. Robust standard errors in parentheses. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table B.2 reports the tests for instrument strength and validity. We report several results for instrument strength: For task 1 all tests provide support that the instruments are relevant and strong. For task 2, the tests paint a more nuanced picture. The weak identification test in this task is only just above the Stock-Yogo critical value that defines instruments as weak when the bias from 2SLS is greater than 25% of the bias of OLS.

Table B.2: **First Stage Regression Tests for Task 1 and Task 2**

This table shows the statistical tests for the first stage regressions in our IV estimation for Task 1 (n=500) and Task 2 (n=499). Since each participant gave a rating for one of ten lump sum debt or monthly repayment levels in a series of 20 questions, the total number of observations is 20\*500=10,000 and 20\*499=9,980, respectively. Table 3 describes the variables. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Test Statistic	Task 1	Task 2
<b>F test of excluded instruments</b>	F(2, 9969) = 39.07	F(2, 9948) = 7.93
P-value	0.0000	0.0004
<b>Sanderson-Windmeijer multivariate F test of excluded instruments for Used Mortgage Broker (de-meaned)</b>	F(2, 9969) = 39.07	F(2, 9948) = 7.93
P-value	0.0000	0.0004
<b>Sanderson-Windmeijer chi-square test of underidentification for Used Mortgage Broker (de-meaned)</b>	Chi-sq(2) = 78.39	Chi-sq(2) = 15.90
P-value	0.000	0.0004
<b>Underidentification test</b>		
Ho: matrix of reduced form coefficients has rank=K1-1 (underidentified)		
Ha: matrix has rank=K1 (identified)		
Kleibergen-Paap rk LM statistic	Chi-sq(2) = 73.02	Chi-sq(2) = 16.02
P-value	0.0000	0.0003
<b>Weak identification test</b>		
Cragg-Donald Wald F statistic	22.61	7.33
Kleibergen-Paap Wald rk F statistic	39.07	7.93
For reference, the Stock-Yogo weak ID F test critical values for K1=1 and L1=2 are:		
		10% maximal IV size = 19.93
		15% maximal IV size = 11.59
		20% maximal IV size = 8.75
		25% maximal IV size = 7.25
<b>Weak-instrument-robust inference</b>		
Tests of joint significance of endogenous regressors B1 in main equation		
Ho: B1=0 and orthogonality conditions are valid		
Anderson-Rubin Wald test	F(2,9969)= 2.25	F(2, 9948) = 5.48
P-value	0.1055	0.0042
Anderson-Rubin Wald test	Chi-sq(2)= 4.51	Chi-sq(2)= 11.00
P-value	0.1047	0.0041
Stock-Wright LM S statistic	Chi-sq(2)= 4.51	Chi-sq(2)= 13.68
P-value	0.1048	0.0011
Observations	10,000	9,980
Number of regressors (K)	30	31
Number of endogenous regressors (K1)	1	1
Number of instruments (L)	31	32
Number of excluded instruments (L1)	2	2



**Online Appendix C    Logit estimation: Broker users and non-broker users**

Table C.1: **Logit Estimation of Broker use type**

Table reports analysis of mortgage broker use. The model in column 1 is estimated on the full sample (n=999). It shows estimated coefficients from logit regression of the indicator for previously consulting a mortgage broker on participant characteristics . The model in column 2 is estimated on the sub-sample of participants who have not previously consulted a mortgage broker (n=446). It shows estimated coefficients from a logit regression of an indicator that the participant says that they intend to consult a mortgage broker in the future on participant characteristics. Variable definitions are shown in Table 3. Standard errors in parentheses. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

	Logit	
	Have used mortgage broker	Have not but will use broker
Financial Literacy	0.191 (0.161)	0.005 (0.312)
Numeracy	0.066 (0.168)	-0.463 (0.351)
Female	-0.001 (0.153)	-0.095 (0.320)
Young Age	0.793*** (0.169)	0.412 (0.408)
Weekly income < \$2000	-0.250* (0.145)	0.077 (0.296)
Partnered	0.375** (0.161)	0.489 (0.304)
Bachelor degree or higher	0.135 (0.158)	-0.075 (0.336)
Risk aversion above average	-0.221 (0.158)	-0.605* (0.313)
Patience above average	0.080 (0.148)	-0.159 (0.311)
Employed	0.367* (0.202)	0.458 (0.412)
Monotonic task responses	0.074 (0.146)	-0.407 (0.279)
Mortgage experience	1.260*** (0.433)	-2.391*** (0.674)
Upside house price risk	-0.330* (0.171)	0.303* (0.180)
Downside house price risk	0.230 (0.162)	-0.247 (0.190)
Mortgage experience *Upside price risk	0.342* (0.180)	-0.265 (0.232)
Mortgage experience *Downside price risk	-0.100 (0.173)	0.485** (0.229)
Constant	-1.908*** (0.523)	-0.315 (0.869)
Pseudo R-squared	0.118	0.278
Observations	999	446

## Online Appendix D Between-Subjects Robustness Checks: Survey 2

We conducted an additional survey to test the robustness of our findings. In the additional survey, we used an entirely between-subjects design: in task 1 of this round, each participant ( $n=798$ ) rated their comfort or discomfort with either one lump sum debt amount or one monthly repayment amount, randomly drawn from a shortened set of four possible values. Table D.1 shows the reduced list of lump sums and monthly repayment amounts. This design removes within-subject comfort and borrowing intention comparisons but is arguably less realistic than allowing participants to compare a series of mortgage debts. Most borrowers would review a range of loan amounts to get a sense of the impacts on their household budget and capacity to pay, before deciding on finance. For this reason, we treat this survey as a weaker test of sensitivity to framing than the main survey.

Second, instead of asking for equivalent lump sum or repayment amount as in task 2 of the main survey, the task 2 in this survey ( $n=803$ ) showed participants a lump sum or repayment value and asked if they would increase, maintain or decrease the size of their loan. We then repeated this task in the alternative format. The goal of the second task was to see if stated borrowing intentions were significantly affected by the framing condition and other characteristics of the participants.

Table D.1: **Lump sum loan and monthly repayment values**

This table shows the four lump sum loan sizes and equivalent monthly repayment amounts used in the additional survey. Values were approximately calibrated around average new loan sizes for owner-occupied dwellings in Australia in 2020 with each set increasing the loan amount at a constant log linear rate of approximately 35%. Monthly principal and interest payments repayments are calculated for a 25 year loan term at an interest rate of 2.9% p.a.

Set	Total loan size (\$)	Monthly repayments (\$)
1	365,000	1,700
2	664,000	3,100
3	1,211,000	5,700
4	2,206,000	10,350

We put the second online experiment to field in April 2021 ( $n=1601$ )<sup>1</sup>. We collected a new sample of Pureprofile panel members and screened using the same filters as in experiment 1. Pureprofile again compensated participants who completed the survey for their time (approximately \$A4). The majority of participants completed this survey in under 12 minutes, and the entire data collection process took around two weeks. Table D.2 reports summary statistics for this sample.

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<sup>1</sup>The full second survey is available at <https://survey.us.confirmit.com/wix/3/p999990868183.aspx>

Table D.2: **Descriptive Statistics**

This table presents descriptive statistics for survey participants. First Survey: October 2020, n=999; Second survey: April 2021, n=1601. Population statistics are from the 2021 Australian census. <sup>a</sup>Source: ?; <sup>b</sup>Source: ? .

	% Main Survey	% Second Survey	% 25-64 yrs pop'n
Number of Respondents	999	1601	
<b>Gender</b>			
Female	50.0	50.0	50.9
<b>Partnered</b>			
Married or Living in long-term partnership	73.0	86.9	61.9
<b>Age group</b>			
25-29 years	14.2	10.4	13.3
30-34 years	14.6	16.6	13.9
35-39 years	13.5	18.4	13.8
40-44 years	12.3	19.1	12.3
45-49 years	12.6	12.9	12.2
50-54 years	10.4	8.6	12.0
55-59 years	11.7	6.6	11.5
60-64 years	10.6	7.3	11.0
<b>Household weekly income group</b>			
\$1,000 - \$1,249	13.4	8.1	21.0
\$1,250 - \$1,499	12.9	10.9	16.9
\$1,500 - \$1,999	23.5	20.0	15.5
\$2,000 - \$2,499	16.4	16.4	11.9
\$2,500 - \$2,999	12.2	18.3	21.1
\$3,000 - \$3,499	9.0	9.2	4.9
\$3,500 - \$3,999	6.0	7.3	8.6 (\$3,500+)
\$4,000 - \$4,999	3.7	5.4	-
\$5,000+	2.8	4.6	-
<b>Education level</b>			
Bachelor's degree or higher	63.0	69.5	33.4
<b>Employment status</b>			
Employed full time or part time	85.0	89.3	72.8
<b>Risk aversion</b>			
Average or higher risk aversion	55.2	43.8	-
<b>Patience</b>			
Average or higher patience	61.6	68.8	-
<b>Financial literacy</b>			
Low (zero correct)	10.9	20.1	8.1 <sup>a</sup>
Low (interest & inflation correct)	59.3	44.6	63.7 <sup>a</sup>
High (three correct)	47.0	33.5	42.9 <sup>a</sup>
<b>Numeracy</b>			
Low (zero correct)	21.6	34.8	-
Low (one correct)	23.7	23.9	-
High (three correct)	54.6	41.2	-
<b>Mortgage experience</b>			
Current or past mortgage	81.8	90.3	-
<b>Have previously consulted mortgage broker</b>			
Yes	55.4	64.8	55.7 <sup>b</sup>
<b>Will consult mortgage broker in future</b>			
Yes	45.0	54.4	-
Have previously and will consult in future	34.2	46.9	-
Have not previously but will consult in future	10.8	7.5	-

After joining the survey and passing the filters, participants were randomly assigned to task 1 (n=798) or task 2 (n=803). Participants in task 1 saw a text box and rating scale as in the main survey task 1 (Figure 1 panel (a)). This task asked them to rate their relative comfort or discomfort as before, but for only one of four lump sum or repayment levels. That is they answered the question "Suppose your monthly mortgage repayment is \$1,700 (total debt is \$365,000) and you do not have to repay any more beyond this amount. Please rate how comfortable or uncomfortable you would be with a total new monthly mortgage repayment of \$1,700 (total new mortgage debt of \$365,000)". The experiment randomized the order of the lump sum - repayment presentation and randomized the levels of debt.

Table D.3 summarizes results from this task by participant group. Results confirm that participants with high financial literacy or numeracy are generally less comfortable with mortgage debt and that participants who either have consulted or intend to consult mortgage brokers rate themselves as more comfortable with mortgage debt. The mean comfort ratings are again lower for the lump sum than for repayment frame, confirming that on average, participants perceive lump sums as "larger".

**Table D.3: Summary statistics: Between-subjects comfort level**

This table shows mean values of ratings from 1="Very uncomfortable" to 7="Very comfortable" on debt/repayment levels by participant subgroup. Each participant gave a rating for one of four lump sum debt or monthly repayment levels. We exclude participants in the lowest and highest 5 % by survey completion time as a check on attention. \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Comfort level	Mean	Standard error	t-test
Total	4.029	2.362	
Framing: Repayments	3.867	0.119	
Framing: Lump sum	4.190	0.117	-1.936*
No mortgage experience	4.071	0.238	
Mortgage experience	4.024	0.089	0.188
Financial literacy (low)	4.474	0.100	
Financial literacy (high)	3.162	0.136	7.756***
Numeracy (low)	4.200	0.093	
Numeracy (high)	3.387	0.183	3.962***
Has not used mortgage broker	3.374	0.129	
Has used mortgage broker	4.385	0.105	-6.077***
Will not use mortgage broker	3.214	0.112	
Will use mortgage broker	4.762	0.112	-9.801***
Observations			798

In task 2 of this survey, participants answered the following question: "Suppose your monthly mortgage repayment amount is \$1,700 (total debt is \$365,000). Would you increase the amount you have borrowed, keep the amount the same, or decrease the amount you have borrowed?". Participants assigned to this task chose a response from a five point scale from "Decrease it a lot" to "Increase it a lot". This final task aimed to measure borrowing intentions. As for task 1, we randomly assigned participants to one of four loan amounts from Table D.1 framed either as lump sum or monthly repayment in a between-subjects design. Each of the participants in task 2 thus stated whether they would change their borrowing amount in response to one lump sum or repayment stream value.

Table D.4 summarizes results from this task. On average, participants' stated intentions to change the amount borrowed do not show any sensitivity to frame. But participants with high financial literacy or numeracy generally intend to reduce loan amounts more than participants with low financial literacy and numeracy. And again, participants who either have consulted or intend to consult mortgage

brokers state the reverse intention - preferring to adjust borrowing up more than down at significantly higher rates than participants who have not consulted brokers or who do not intend to.

Table D.4: **Summary statistics: Between-subjects debt adjustment decisions**

This table shows mean values of ratings from 1="Decrease a lot" to 5="Increase a lot" on debt/repayment levels by participant subgroup. Each participant gave a rating for one of four lump sum debt or monthly repayment levels. We exclude participants in the lowest and highest 5 % by survey completion time as a check on attention. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Intention to change amount borrowed	Mean	Standard error	t-test
Total	2.781	1.389	
Framing: Repayments	2.851	0.069	
Framing: Lump sum	2.713	0.069	1.414
No mortgage experience	2.720	0.147	
Mortgage experience	2.787	0.052	-0.432
Financial literacy (low)	3.114	0.060	
Financial literacy (high)	2.109	0.069	10.980***
Numeracy (low)	2.955	0.055	
Numeracy (high)	2.104	0.087	8.239***
Has not used mortgage broker	2.502	0.076	
Has used mortgage broker	2.933	0.062	-4.381***
Will not use mortgage broker	2.489	0.067	
Will use mortgage broker	3.009	0.068	-5.451***
Observations			803